

REMARKS

Information Disclosure Statement:

Applicant thanks the Examiner for initialing and returning the Form PTO/SB/08 A & B filed on December 30, 2003, thus indicating that all of the references listed thereon have been considered.

Withdrawn Claims:

Claims 18-31, 34-35 and 38-39 remain withdrawn from consideration.

Allowable Subject Matter:

Applicant notes with appreciation the Examiner's indication that Claims 33 and 37 are currently allowable.

Claim Rejections:

Claims 1-39 are all of the claims pending in the present application, and currently claims 1-17, 32 and 36 stand rejected.

35 U.S.C. § 112, 2nd Paragraph Rejection - Claims 3-5 and 14-17:

Claims 3-5 and 14-17 stand rejected under 35 U.S.C. § 112, 2nd paragraph as being indefinite. Specifically, the Examiner has indicated that the phrase "said diffraction image plane" lacks antecedent basis.

Applicant has amended each of claims 3 and 14 to address the Examiner's concern regarding these claims, and Applicant submits that these claims are clear and definite. Thus, Applicant hereby requests the Examiner reconsider and withdraw the above rejection of these claims.

Further, Applicant notes that the above referenced claim amendments have been made to merely clarify the claimed invention and are not intended to narrow the original scope or spirit of the claims in any way.

35 U.S.C. § 102(b) Rejection - Claims 1-2:

Claims 1-2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the Lipson article, *Optical Physics*, submitted in the December 30, 2003 Information Disclosure Statement. In view of the following discussion, Applicant respectfully traverses the above rejection.

Lipson discloses an optical system having a light source S which emits light beams parallel to each other. The light illuminates an object O, and after which passes through a lens L. The lens L focuses the light at a focal point F, after which the light impacts a mirror M. The reflected light passes through a second lens (the lens between the mirror M and the second focal point F') and is focused on a second focal point F'. Filtering masks are provided in each of the focal planes and the images at each of the focal planes are viewed simultaneously. In Lipson, the object O is arranged between the light source S and the lens L.

However, in the present invention, the sample is arranged between the illuminating means, which has a single point light source and an optical converging system, and the converging point. This is not disclosed, taught or suggested by Lipson. In Lipson, the object O is positioned upstream of both the converging lens L and the converging point F. This is unlike the present invention, where the sample is mounted between the illuminating means (having an optical converging system) and the converging point. In Lipson, "[t]he object O is illuminated

by parallel coherent light from the laser source S.” Lipson, page 333. Thus, in Lipson, the object O is positioned upstream of the converging lens L, which is not the present invention.

Further, in Lipson, the lens L must be an objective lens and the other lens (the Examiner is identifying the off axis lens to be the objective lens) is only used so that diffraction image plane F is transferred to the position F’. Therefore, the lens cannot focus on the object (sample) O, and the lens asserted by the Examiner to be the “objective lens” is not an “objective lens.”

Further, there is no disclosure, in Lipson, of a single point light source.

In view of the foregoing, Applicant submits that Lipson fails to disclose each and every feature of the present invention, as set forth in claim 1. Therefore, Lipson fails to anticipate the claimed invention, as required under the provisions of 35 U.S.C. § 102(b). Accordingly, Applicant hereby requests the Examiner reconsider and withdraw the above 35 U.S.C. § 102(b) rejection of claim 1. Further, as claim 2 depends on claim 1, Applicant submits that this claim is also allowable, at least by reason of its dependence.

35 U.S.C. § 103(a) Rejection - Claims 3-5, 14-17, 32 and 36:

Claims 3-5, 14-17, 32 and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lipson in view of the Goodman article entitled, *Introduction to Fourier Optics* (also submitted in the December 30, 2003 IDS). In view of the following discussion, Applicant respectfully traverses the above rejection.

Similar to claim 1, claims 3 and 14 indicate that the light from the light source is convergent. Specifically, claim 3 states “illuminating means for *emitting as illumination light a convergent beam* converging at a point in a space.” See claim 3, *see also* claim 14. Thus, for

Lipson to teach or suggest the claimed invention, the light source S must emit a convergent beam. As indicated and shown in Figure 12.4, in Lipson, the light source S emits a parallel beam. It is the lens L which makes the light from the source S converge. Thus, for the Examiner to read Lipson on the claim 3, the Examiner must include the lens L as part of the light source.

However, with this interpretation of Lipson, the Examiner's analysis fails. Specifically, in the claimed invention, the objective lens focuses the light on either the sample or a diffraction image plane, which is orthogonal to the optical axis of the illumination light. Neither of these configurations is disclosed, taught or suggested in Lipson. Namely, in Lipson, the light is not focused on the sample, and the objective lens (the Examiner is identifying the off-axis lens to be the objective lens) does not focus on a diffraction image plane which is orthogonal to the optical axis.

Further, Applicant submits that the Goodman article fails to cure the deficient teachings of Lipson. Namely, the above claimed features of the present invention are also neither taught or suggested by Goodman.

In view of the foregoing, Applicant submits that the above references, taken either individually or in combination, fail to teach or suggest each and every feature as set forth in claims 3, 14, 32 and 36. Therefore, Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to these claims, as required under the provisions of 35 U.S.C. § 103(a). Accordingly, Applicant hereby requests the Examiner reconsider and withdraw the above 35 U.S.C. § 103(a) rejection of these claims. Further, as claims 4-5 and 15-

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17 depend on claims 3 and 14, respectively, Applicant submits that these claims are also allowable, at least by reason of their dependence.

35 U.S.C. § 103(a) Rejection - Claims 1 and 6:

Claims 1 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,305,139 to Greenberg in view of U.S. Patent No. 5,684,626 to Greenberg. In view of the following discussion, Applicant respectfully traverses the above rejection.

The Examiner suggests that it would have been obvious to combine the above references to achieve the present invention. Specifically, the Examiner asserts that it would have been obvious to use a single light source in the '139 patent and add a reflecting means (i.e. a prism) which is movable along the illuminating light path for the purpose of varying the illumination pattern. *See* Office Action, page 6. Applicant respectfully disagrees.

The '139 reference is directed to creating a 3D representation of the sample and, as such, requires separate beams of light and/or light sources to render such an image. As indicated at col. 10, a plurality of beams are required. In fact, even though the '139 patent suggests using a single light source, the source must be split up into at least two separate light beams. Col. 10, lines 21-32. Applicant submits that this is different from the present invention.

In the present invention, the illuminating means has a "single point light source" and an optical converging system for "emitting a single beam of illumination light." *See* claim 1. This is neither taught or suggested by the above cited references.

Additionally, because the '139 patent is directed to creating a 3D image, Applicant submits that one of ordinary skill in the art would not have been motivated to modify the '139 patent with the '626 patent to use a single light source with a single light beam.

Moreover, Applicant notes that the ring light 76 (shown in Figure 12) is not a point light source, but is a multi-point light source. Thus, even if the references were combined as suggested by the Examiner, the resultant combination would fail to teach or suggest each and every feature of the present invention.

In view of the foregoing, Applicant submits that the above references, taken either individually or in combination, fail to teach or suggest each and every feature as set forth in claim 1. Therefore, Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to this claim, as required under the provisions of 35 U.S.C. § 103(a). Accordingly, Applicant hereby requests the Examiner reconsider and withdraw the above 35 U.S.C. § 103(a) rejection of claim 1. Further, as claim 6 depends on claim 1, Applicant submits that this claim is also allowable, at least by reason of its dependence.

35 U.S.C. § 103(a) Rejection - Claims 2, 7-12 and 13:

Claims 2, 7-12 and 13 stand rejected under 35 U.S.C. § 103(a) in view of the above Greenberg references, in further view of the Shimada and Ellis references. However, because these supplemental references (i.e. Shimada and Ellis) fail to cure the deficient teachings of the Greenberg references (discussed above), Applicant submits that these claims are also allowable, at least by reason of their dependence.

Conclusion:

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

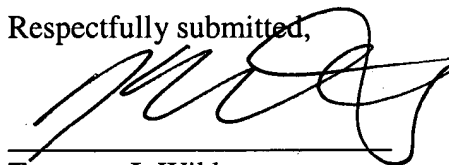
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Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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